

What is claimed is:

1. An apparatus for identifying a scene location viewed via a remotely operated television camera system, the apparatus comprising:

a first television camera adapted to be remotely operated for observing a scene from varying directions through a narrow angle lens, said first television camera including at least two image pick up devices;

a second television camera conjoint said first television camera for observing said scene through a wide angle lens, said first and said second television cameras being optically targeted towards the same scene being observed;

means for moving said first and second television cameras conjointly;

a processor including signal combining circuit means for combining video signals generated by said first television camera and by said second television camera for regenerating a combined video signal and for outputting said combined video signal composed of a sub picture of said scene observed by said second television camera

inside a main picture of said scene observed by said first television camera, so that said sub picture, which is a wide angle view of said scene and which occupies a small area inside said main picture which is a narrow angle view of said scene, identifies the scene location;

at least one of said image pick up devices being a color imager and at least another one of said image pick up devices being a black and white imager, and said first television camera including a switchover means for switching said image pick up devices from said color imager to said black and white imager and back to said color imager;

said processor including a sensing and comparing circuit for said video signals generated by said first television camera and said second television camera, for detecting one of a low comparative video signal and a high comparative video signal by comparing said video signals to a reference signal,

wherein said processor activates said switching from said color imager to said black and white imager when said sensing and comparing circuit detects the low comparative video signal generated by said first television camera, and returns said switchover means back to said color

imager when said sensing and comparing circuit detects the high comparative video signal generated by said second television camera.

2. The apparatus according to claim 1, wherein said signal combining circuit means for combining video signals regenerates a reversed combined signal composed of said sub picture in said main picture wherein said sub picture is a narrow angle view of said scene observed by said first television camera and said main picture is a wide angle view of said scene observed by said second television camera, thereby outputting a reversed combined signal composed of an eagle view of said scene.
3. The apparatus according to claim 1, wherein said signal combining circuit means outputs a selectable video signal generated by said first television camera and by said second television camera individually, a selectable combined signal composed of sub picture in said main picture wherein said sub picture is a wide angle view of said scene observed by said second television camera and said main picture is a narrow angle view of said scene observed by said first television camera, and a reversed combined signal wherein said sub picture is a narrow angle view of said scene observed by said first television camera and said main picture is a wide angle view of said scene observed by said second television camera, thereby

selectively outputting a combined signal for identifying the scene location and a reversed combined signal with an eagle view of said scene, respectively.

4. The apparatus according to claim 3, wherein at least one of said at least two image pick up devices is a smaller imager with a smaller diagonal size and another one of said image pick up devices is a larger imager with a larger diagonal size and wherein said switchover means switches over said image pick up devices from said smaller imager to said larger imager when said sensing and comparing circuit detects said low comparative signal and back to said smaller imager when said sensing and detecting circuit comparing said high comparative signal.
5. The apparatus according to claim 3, wherein said remotely operated camera system includes means for a remote activation of said switchover means and at least one of said at least two image pick up devices is a smaller imager with a smaller diagonal size and another one of said image pick up devices is a larger imager with a larger diagonal size and wherein said switchover means is remotely activated and switches over said image pick up devices from said smaller imager to the larger imager for increasing the angle of view of said narrow angle lens and back to said smaller imager to decrease said angle of view.

6. The apparatus according to claim 1, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
7. The apparatus according to claim 2, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
8. The apparatus according to claim 3, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
9. The apparatus according to claim 4, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
10. The apparatus according to claim 5, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
11. The apparatus according to claim 1, wherein said camera system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed

regenerating process of said combined video signal.

12. The apparatus according to claim 2, wherein said camera system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed regenerating process of said reversed combined signal.

13. The apparatus according to claim 3, wherein said camera system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed switchover of said video signal and a smooth undisturbed regenerating process of said combined video signal and said reversed combined signal.

14. The apparatus according to claim 4, wherein said camera system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed switchover of said video signal and a smooth undisturbed regenerating process of said combined video signal and said reversed combined signal.

15. The apparatus according to claim 5, wherein said camera

system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed switchover of said video signal and a smooth undisturbed regenerating process of said combined video signal and said reversed combined signal.

16. The apparatus according to claim 11, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said combined video signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for switching over said switchover means from said color imager to said black and white imager and back to said color imager.

17. The apparatus according to claim 12, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said reversed combined signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for switching over said switchover means from said color imager to said black and white imager and back to said color imager.

18. The apparatus according to claim 13, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said selectable video signal, said combined video signal and said reversed combined signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for selectively outputting said video signal generated by said first television camera and by said second television camera, said combined video signal and said reversed combined signal and for switching over said switchover means from said color

imager to said black and white imager and back to said color imager.

19. The apparatus according to claim 14, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said video signal, said combined video signal and said reversed combined signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for selectively outputting said video signal generated by said first television camera and by said second television camera, said combined video signal and said reversed combined signal and for switching over said switchover means from said smaller imager to said larger imager and back to said smaller imager.

20. The apparatus according to claim 15, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands

generated by said controller to said camera system and said video signal, said combined video signal and said reversed combined signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for selectively outputting said video signal generated by said first television camera and by said second television camera, said combined video signal and said reversed combined signal and for switching over said switch over means from said smaller imager to said larger imager and back to said smaller imager.

21. The apparatus according to claim 16, and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein said camera system incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said

internal synchronizing generator.

22. The apparatus according to claim 17, and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein said camera systems each incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

23. The apparatus according to claim 18, and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower

than a minimum voltage level of said video signals, and wherein said camera system each incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

24. The apparatus according to claim 19, and the further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein said camera system incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

25. The apparatus according to claim 20, and comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and said camera system each incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

26. An apparatus for identifying a scene location viewed via a remotely operated television camera system, the apparatus comprising:

a first television camera adapted to be remotely operated for observing a scene from varying directions through a narrow angle lens, said first television camera including a dual mode image pick up device executing a color mode for generating color video signals and a black and white mode for generating black and white video signals;

a second television camera conjoint said first

television camera for observing said scene through a wide angle lens, said first and said second television cameras being optically targeted towards the same scene being observed;

means for moving said first and second television cameras conjointly;

a processor including signal combining circuit means for combining video signals generated by said first television camera and by said second television camera for regenerating a combined video signal and for outputting said combined video signal composed of a sub picture of said scene observed by said second television camera inside main picture of said scene observed by said first television camera, so that said sub picture, which is a wide angle view of said scene and occupies a small area inside said main picture which is a narrow angle view of said scene, identifies the scene location;

said first television camera including a switchover means for switching said modes of said image pick up device from said color mode to said black and white mode and back to said color mode, said dual mode pick up device changing its mode from the color to the black and white by a removal of an optical filter, and wherein said switchover means switches over the mode of said dual mode image pick up device by one of removing and inserting said optical

filter between said dual mode image pick up device and said narrow angle lens,

said processor including a sensing and comparing circuit for said video signals generated by said first television camera and said second television camera for detecting one of a low comparative video signal and a high comparative video signal by comparing said video signals to a reference signal, and wherein said processor activates said switching from the color mode to the black and white mode when said sensing and comparing circuit detects said low comparative video signal generated by said first television camera, and returns back to said color mode when said sensing and comparing circuit detects said high comparative video signal generated by said second television camera.

27. The apparatus according to claim 26, wherein said signal combining circuit means for combining video signals regenerates a reversed combined signal composed of said sub picture in said main picture wherein said sub picture is a narrow angle view of said scene observed by said first television camera and said main picture is a wide angle view of said scene observed by said second television camera, thereby outputting a reversed combined signal composed of an eagle view of said scene.

28. The apparatus according to claim 26, wherein said signal

combining circuit means outputs a selectable video signal generated by said first television camera and by said second television camera individually, a selectable combined signal composed of said sub picture in said main picture wherein said sub picture is a wide angle view of said scene observed by said second television camera and said main picture is a narrow angle view of said scene observed by said first television camera, and a reversed combined signal wherein said sub picture is a narrow angle view of said scene observed by said first television camera and said main picture is a wide angle view of said scene observed by said second television camera, thereby selectively outputting said combined signal for identifying the scene location and a reversed combined signal with an eagle view of said scene, respectively.

29. The apparatus according to claim 28, wherein the dual modes of said dual mode image pick up device are a black and white mode for generating black and white video signals and an infrared mode for generating black and white signals of an infrared illuminated scene, and wherein said dual mode image pick up device changes the mode thereof from the black and white mode to the infrared mode by a removal of an optical filter.

30. The apparatus according to claim 26, wherein said narrow angle and said wide angle are set by lenses selected from

a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

31. The apparatus according to claim 27, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
32. The apparatus according to claim 28, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
33. The apparatus according to claim 29, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
34. The apparatus according to claim 26, wherein said camera system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide smooth a undisturbed regenerating process of said combined video signal.
35. The apparatus according to claim 27, wherein said camera system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed

regenerating process of said reversed combined signal.

36. The apparatus according to claim 28, wherein said camera system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed switchover of said video signal and a smooth undisturbed regenerating process of said combined video signal and said reversed combined signal.

37. The apparatus according to claim 29, wherein said camera system includes an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed switchover of said video signal and a smooth undisturbed regenerating process of said combined video signal and said reversed combined signal.

38. The apparatus according to claim 34, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said combined video signal to said receiving means and to

said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for switching-over said switchover means from said color mode to said black and white mode and back to said color mode.

39. The apparatus according to claim 35, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said reversed combined signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for switching-over said switchover means from the color mode to black and the white mode and back to the color mode.

40. The apparatus according to claim 36, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and

said selectable video signal, said combined video signal and said reversed combined signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor include commands for selectively outputting said video signal generated by said first television camera and by said second television camera, and said combined video signal and said reversed combined signal and for switching-over said switchover means from color mode to said black and said white mode and back to said color mode.

41. The apparatus according to claim 37, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said selectable video signal, said combined video signal and said reversed combined signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for selectively outputting said video signal generated by said first television

camera and by said second television camera, and said combined video signal and said reversed combined signal and for switching-over said switchover means from said black and white mode to said infrared mode and back to said black and white mode.

42. The apparatus according to claim 38, and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein said camera system incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

43. The apparatus according to claim 39, and further comprising:

an external synchronizing device for externally

synchronizing said camera system, said external
synchronizing device including:

an external synchronizing signal generator circuit
feeding said transmission line with an external
synchronizing pulse signal having a voltage level higher
than a maximum voltage level or lower than a minimum
voltage level of said video signals, and wherein

said camera system incorporates a comparator circuit for
separating said pulse signal propagated over said
transmission line from said video signals by comparing
said video signals to a reference signal and applying said
separated pulse signal to said internal synchronizing
generator for externally synchronizing said internal
synchronizing generator.

44. The apparatus according to claim 40, and further
comprising:

an external synchronizing device for externally
synchronizing said camera system, said external
synchronizing device including:

an external synchronizing signal generator circuit
feeding said transmission line with an external
synchronizing pulse signal having a voltage level higher
than a maximum voltage level or lower than a minimum
voltage level of said video signals, and wherein

said camera system incorporates a comparator circuit for

separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

45. An apparatus according to claim 41 and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including:

an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein

said camera system incorporate a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

46. An apparatus for identifying a scene location viewed via a

remotely operated television camera system, the apparatus

comprising:

a television camera adapted to be remotely operated for observing a scene from varying directions through a narrow angle lens, said television camera including two or more image pick up devices;

an illumination level sensor conjoint said television camera for sensing the illumination level of said scene through a wide angle lens, said television camera and said illumination level sensor being optically targeted towards the same scene being observed;

means for moving said television camera and said illumination level sensor conjointly;

at least one of said pick up image devices being a color imager and at least another one of said pick up image devices being a black and white imager,

said television camera including a switchover means for switching said image pick up devices from said color imager to said black and white imager and back to said color imager;

a processor including a sensing and comparing circuit for video signals generated by said television camera and illumination signals generated by said illumination level sensor for detecting a low comparative video signal and a high comparative illumination signal by comparing said video signals and said illumination signals to a reference

signal, and wherein said processor activates said switchover means from said color imager to said black and white imager when said sensing and comparing circuit detects said low comparative video signal generated by said television camera, and returns said switchover means back to said color imager when said sensing and comparing circuit detects said high comparative illumination signal generated by said illumination level sensor.

47. The apparatus according to claim 46, wherein said remotely operated camera system includes means for a remote activation of said switchover means and at least one of said two or more image pick up devices is a smaller imager with a smaller diagonal size and at least another one of said two or more image pick up devices is a larger imager with a larger diagonal size and wherein said switchover means is remotely activated and switches over said image pick up devices from said smaller imager to said larger imager for increasing the angle of view of said narrow angle lens and back to said smaller imager to decrease said angle of view.

48. The apparatus according to claim 46, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed angle lens, a varifocal lens and a zoom lens.

49. The apparatus according to claim 47, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed angle lens, a varifocal lens and a zoom lens.

50. The apparatus according to claim 46, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said video signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for switching-over said switchover means from said color imager to said black and white imager and back to said color imager.

51. The apparatus according to claim 47, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said video signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for switching-over said switchover means from said larger imager to said smaller imager and back to said larger imager.

52. The apparatus according to claim 50, and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein

said camera system incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said television camera.

53. The apparatus according to claim 51, and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including:

an external synchronizing signal generator circuit

feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein

said camera system incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said television camera.

54. An apparatus for identifying a scene location viewed via a remotely operated television camera system, the apparatus comprising:

a television camera adapted to be remotely operated for observing a scene from varying directions through a narrow angle lens, said television camera including a dual mode image pick up device executing a color mode for generating color video signals and a black and white mode for generating black and white video signals;

an illumination level sensor conjoint said television camera for sensing the illumination level of said scene through a wide angle lens, said television camera and said illumination level sensor being optically targeted towards the same scene being observed;

means for moving said television camera and said illumination sensor conjointly;

said television camera including a switchover means for switching said mode of said image pick up device from said color mode to said black and white mode and back to said color mode;

said dual mode pick up device changing the mode thereof from said color mode to said black and white mode by a removal of an optical filter, and wherein said switchover means switches over the mode of said dual mode image pick up device by one of removing and inserting said optical filter between said dual mode image pick up device and said narrow angle lens;

a processor including a sensing and comparing circuit for video signals generated by said television camera and illumination signals generated by said illumination level sensor for detecting a low comparative video signal and a high comparative illumination signal by comparing said video signals and said illumination signals to a reference signal, and wherein said processor activates said switching from said color mode to said black and white mode when said sensing and comparing circuit detects said low comparative video signal generated by said television camera, and returns back to said color mode when said sensing and comparing circuit detects said high comparative illumination signal generated by said

illumination level sensor.

55. The apparatus according to claim 52, wherein the dual modes of said mode image pick up device are a black and white mode for generating black and white video signals and an IR mode for generating black and white signals of an IR illuminated scene and wherein said dual mode image pick up device changes the mode thereof from said black and white mode to said infrared by a removal of an optical filter.
56. The apparatus according to claim 54, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
57. The apparatus according to claim 55, wherein said narrow angle and said wide angle are by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.
58. The apparatus according to claim 54, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said video signal to said receiving means and to said

display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for switching-over said switchover means from said color mode to said black and white mode and back to said color mode.

59. The apparatus according to claim 55, and further comprising:

a receiving means including a controller coupled to a display means and to said processor;

a transmission line for propagating control commands generated by said controller to said camera system and said video signal to said receiving means and to said display means;

said control commands generated by said controller and propagated through said transmission line to said processor including commands for switching-over said switchover means from said black and white mode to said infrared mode and back to said black and white mode.

60. The apparatus according to claim 58, and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line

with an external synchronizing pulse signal having a voltage level higher than a maximum voltage levels or lower than a minimum voltage level of said video signals, and wherein

said camera system incorporate a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said television camera.

61. The apparatus according to claim 59, and further comprising:

an external synchronizing device for externally synchronizing said camera system, said external synchronizing device including

an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein

said camera system incorporates a comparator circuit for separating said pulse signal propagated over said transmission line from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said television camera.

62. The apparatus according to claim 18, wherein said second

television camera includes said two or more image pick up devices and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera independently from said switchover means of said first television camera.

63. The apparatus according to claim 19, wherein said second television camera also includes said at least two image pick up devices and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera independently from said switchover means of said first television camera.
64. The apparatus according to claim 20, wherein said second television camera also includes said at least two image pick up devices and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera independently from said switchover means of said first television camera.
65. An apparatus according to claim 40, wherein said second television camera also includes said dual mode image pick up device and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera

independently from said switchover means of said first television camera.

66. The apparatus according to claim 41, wherein said second television camera also includes said dual mode image pick up device and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera independently from said switchover means of said first television camera.

67. An apparatus for identifying a scene location viewed via remotely operated plurality of television camera systems, the apparatus comprising:

said plurality of television camera systems;

each of said television camera systems including:

a first television camera adapted to be remotely operated for observing a scene from varying directions through a narrow angle lens, said first television camera including two or more image pick up devices;

a second television camera conjoint said first television camera for observing said scene through a wide angle lens, said first and said second television cameras being optically targeted towards the same scene being observed;

means for moving said first and second television cameras conjointly;

a processor including signal combining circuit means for

outputting a selectable video signal generating by said first television camera and by said second television camera individually and regenerate a selectable combined signal composed of a sub picture in said main picture wherein said sub picture is a wide angle view of said scene observed by said second television camera and said main picture is a narrow angle view of said scene observed by said first television camera, and a reversed combined signal wherein said sub picture is a narrow angle view of said scene observed by said first television camera and said main picture is a wide angle view of said scene observed by said second television camera, thereby selectively outputting a combined signal for identifying the scene location and a reversed combined signal with an eagle view of said scene, respectively;

a code signal generating circuit for generating and injecting into the video signal identification code signals allotted to each respective television camera system;

at least one of said image pick up devices being a color imager and at least one of said image pick up devices being a black and white imager,

said first television camera further including a switchover means for switching said image pick up devices from said color imager to said black and white imager and

back to said color imager;

said processor including a sensing and comparing circuit for said video signals generated by said first television camera and said second television camera for detecting one of a low comparative video signal and a high comparative video signal by comparing said video signals to a reference signal, and wherein said processor activates said switching from said color imager to said black and white imager when said sensing and comparing circuit detects said low comparative video signal generated by said first television camera, and returns said switchover means back to said color imager when said sensing and comparing circuit detects said high comparative video signal generated by said second television camera;

an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed switchover of said video signal and a smooth undisturbed regenerating process of said combined signal and said reversed combined signal;

a receiving means including a controller for selectively receiving said video signals, said combined signal and said reversed combined signal and for remotely operating said means for moving said first television camera and said second television camera conjointly, said controller

including a control circuit for selecting and controlling each respective television camera system, and an identification code decoder for retrieving and decoding said identification code signals from the selectively received signals;

a plurality of transmission lines for connecting said television camera systems with said receiving means for propagating said video signals, said combined signal and said reversed combined signal from the respective television camera system to said receiving means and control commands from said receiving means to said respective television camera system;

said control circuit for selecting and controlling each television camera system including a code generator for generating control signals containing coded commands to control said respective television camera system and a code signal corresponding to said identification code signals retrieved and decoded by said identification code decoder and for transmitting said control signals to said respective television camera system;

each television camera system further including a decoder circuit for receiving and decoding said control signals fed from said controller for operating said respective television camera system and said processor for outputting, upon command, the selected signals when said

code signal coincides with an identification code allotted to said respective television camera system;

68. The apparatus according to claim 67, wherein at least one of said two or more image pick up devices is a smaller imager with a smaller diagonal size and another one of said two or more image pick up devices is a larger imager with a larger diagonal size than said smaller imager and wherein said switchover means switches over said image pick up devices from said smaller imager to a larger imager when said sensing and comparing circuit detects said low comparative signal and back to said smaller imager when said sensing and detecting circuit detects said high comparative signal.

69. The apparatus according to claim 67, wherein said remotely operated camera system includes means for a remote activation of said switchover means and at least one of said two or more image pick up devices is a smaller imager with a smaller diagonal size and wherein said switchover means is remotely activated and switches over said image pick up devices from said smaller imager to a larger imager for increasing the angle of view of said narrow angle lens and back to said smaller imager to decrease said angle of view.

70. The apparatus according to claim 67, and further

comprising an external synchronizing device for externally synchronizing said camera systems, said external synchronizing device including;

an external synchronizing signal generator circuit feeding said transmission lines with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein each said camera system incorporate a comparator circuit for separating said pulse signal propagated over said transmission lines from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

71. The apparatus according to claim 68, and further comprising an external synchronizing device for externally synchronizing said camera systems, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission lines with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, wherein and each said camera system incorporate a comparator circuit for separating said pulse signal

propagated over said transmission lines from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

72. The apparatus according to claim 69, and further comprising an external synchronizing device for externally synchronizing said camera systems, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein each said camera system incorporate a comparator circuit for separating said pulse signal propagated over said transmission lines from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

73. The apparatus according to claim 67, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

74. The apparatus according to claim 68, wherein said narrow

angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

75. The apparatus according to claim 69, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

76. The apparatus according to claim 67, wherein said identification code decoder further includes a memory for storing data pertaining to each allotted identification code, and a superimposing circuit for retrieving said data from said memory for selectable superimposing upon command said data along with selectable graphic signs including one of a cross hatch and a target mark onto said video signals.

77. The apparatus according to claim 68, wherein said identification code decoder further includes a memory for storing data pertaining to each allotted identification code, and a superimposing circuit for retrieving said data from said memory for selectable superimposing upon command said data along with selectable graphic signs including cross hatch or target mark onto said video signals.

78. An apparatus according to claim 69, wherein said identification code decoder further includes a memory for storing data pertaining to each allotted identification

code, and a superimposing circuit for retrieving said data from said memory for selectable superimposing upon command said data along with selectable graphic signs including one of a cross hatch and a target mark onto said video signals.

79. The apparatus for identifying a scene location viewed via remotely operated plurality of television camera systems, the apparatus comprising:

said plurality of television camera systems;
each said television camera system including a first television camera adapted to be remotely operated for observing a scene from varying directions through a narrow angle lens, said first television camera including a dual mode image pick up device executing a color mode for generating color video signals and a black and white mode for generating black and white video signals;

a second television camera conjoint said first television camera for observing said scene through a wide angle lens, said first and said second television cameras being optically targeted towards the same scene being observed;

means for moving said first and second television cameras conjointly;

a processor including signal combining circuit means for outputting a selectable video signal generated by said

first television camera and by said second television camera individually and regenerating a selectable combined signal composed of a sub picture in said main picture wherein said sub picture is a wide angle view of said scene observed by said second television camera and said main picture is a narrow angle view of said scene observed by said first television camera, and a reversed combined signal wherein said sub picture is a narrow angle view of said scene observed by said first television camera and said main picture is a wide angle view of said scene observed by said second television camera, thereby selectively outputting a combined signal for identifying the scene location and a reversed combined signal with an eagle view of said scene, respectively;

a code signal generating circuit for generating and injecting into the video signal identification code signals allotted to each respective television camera system;

said first television camera including a switchover means for switching said mode of said image pick up device from said color mode to said black and white mode and back to said color mode;

said dual mode pick up device changes the mode thereof from color to the black and white mode by a removal of an optical filter, and wherein said switchover means switches

over the mode of said dual mode image pick up device by one of removing and inserting said optical filter between said dual mode image pick up device and said narrow angle lens;

said processor including a sensing and comparing circuit for said video signals generated by said first television camera and said second television camera for detecting a low comparative video signal or a high comparative video signal by comparing said video signals to a reference signal, and wherein said processor activates said switching from said color mode to black and white mode when said sensing and comparing circuit detects said low comparative video signal generated by said first television camera, and returns said switchover means back to said color mode when said sensing and comparing circuit detects said high comparative video signal generated by said second television camera;

an internal synchronizing generator for generating and feeding internal synchronizing signals to said first and second television camera and said signal combining circuit means to provide a smooth undisturbed switchover of said video signal and a smooth undisturbed regenerating process of said combined signal and said reversed combined signal;

a receiving means including a controller for selectively

receiving said video signals, said combined signal and said reversed combined signal and for remotely operating said means for moving said first television camera and said second television camera conjointly,

said controller including a control circuit for selecting and controlling each respective television camera system, and an identification code decoder for retrieving and decoding said identification code signals from the selectively received signals;

a plurality of transmission lines for connecting said television camera systems with said receiving means for propagating said video signals, said combined signal and said reversed combined signal from the respective television camera system to said receiving means and control commands from said receiving means to said respective television camera system;

said control circuit for selecting and controlling each television camera system including a code generator for generating control signals containing coded commands to control said respective television camera system and a code signal corresponding to said identification code signals retrieved and decoded by said identification code decoder and for transmitting said control signals to said respective television camera system;

each television camera system further including a decoder

circuit for receiving and decoding said control signals fed from said controller for operating said respective television camera system and said processor for outputting upon command the selected signals when said code signal coincides with an identification code allotted to said respective television camera system;

80. The apparatus according to claim 79, wherein the modes of said dual mode image pick up device are a black and white mode for generating black and white video signals and an infrared mode for generating black and white signals of an infrared illuminated scene and wherein said dual mode image pick up device changes the mode thereof from the black and white mode to the infrared by a removal of an optical filter.

81. The apparatus according to claim 79, and further comprising an external synchronizing device for externally synchronizing said camera systems, said external synchronizing device including an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein each said camera system incorporates a comparator circuit for separating said pulse signal propagated over

said transmission lines from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

82. The apparatus according to claim 80, and further comprising an external synchronizing device for externally synchronizing said camera systems, said external synchronizing device including,

an external synchronizing signal generator circuit feeding said transmission line with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein each said camera system incorporate a comparator circuit for separating said pulse signal propagated over said transmission lines from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said internal synchronizing generator for externally synchronizing said internal synchronizing generator.

83. The apparatus according to claim 79, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

84. The apparatus according to claim 80, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

85. The apparatus according to claim 79, wherein said identification code decoder further includes a memory for storing data pertaining to each allotted identification code, and a superimposing circuit for retrieving said data from said memory for selectable superimposing upon command said data along with selectable graphic signs including one of a cross hatch and a target mark onto said video signals.

86. The apparatus according to claim 80, wherein said identification code decoder further includes a memory for storing data pertaining to each allotted identification code, and a superimposing circuit for retrieving said data from said memory for selectable superimposing upon command said data along with selectable graphic signs including one of a cross hatch and a target mark onto said video signals.

87. An apparatus according to claim 67, wherein said second television also camera includes said two or more image pick up devices and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television

camera independently from said switchover means of said first television camera.

88. The apparatus according to claim 68, wherein said second television camera also includes said two or more image pick up devices and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera independently from said switchover means of said first television camera.

89. The apparatus according to claim 69, wherein said second television camera also includes said two or more image pick up devices and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera independently from said switchover means of said first television camera.

90. The apparatus according to claim 79, wherein said second television camera also includes said dual mode image pick up device and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera independently from said switchover means of said first television camera.

91. The apparatus according to claim 80, wherein said second

television camera also includes said dual mode image pick up device and said switchover means, and wherein said commands include a command to said processor to activate said switchover means of said second television camera independently from said switchover means of said first television camera.

92. An apparatus for identifying a scene location viewed via remotely operated plurality of television camera systems, the apparatus comprising:

said plurality of television camera systems;

each said television camera system including:

a television camera adapted to be remotely operated for observing a scene from varying directions through a narrow angle lens, said television camera including two or more image pick up devices;

an illumination level sensor conjoint said television camera for sensing the illumination level of said scene through a wide angle lens, said television camera and said illumination level sensor being optically targeted towards the same scene being observed;

means for moving said television camera and said illumination level sensor conjointly;

at least one of said pick up image devices being a color imager and at least one of said pick up image devices

being a black and white imager, said television camera including a switchover means for switching said image pick up devices from said color imager to said black and white imager and back to said color imager;

a processor including a sensing and comparing circuit for video signals generated by said television camera and illumination signals generated by said illumination level sensor for detecting a low comparative video signal and a high comparative illumination signal by comparing said video signals and said illumination signals to a reference signal, and wherein said processor activates said switchover means from said color imager to said black and white imager when said sensing and comparing circuit detects said low comparative video signal generated by said television camera, and returns said switchover means back to said color imager when said sensing and comparing circuit detects said high comparative illumination signal generated by said illumination level sensor;

a code signal generating circuit for generating and injecting into the video signal identification code signals allotted to each respective television camera system;

a receiving means including a controller for selectively receiving said video signals and for remotely operating said means for moving said first television camera and

2004-03-04 10:00:00

said illumination level sensor conjointly, said controller including a control circuit for selecting and controlling each respective television camera system, and an identification code decoder for retrieving and decoding said identification code signals from the selectively received signals;

a plurality of transmission lines for connecting said television camera systems with said receiving means for propagating said video signals from the respective television camera system to said receiving means and control commands from said receiving means to said respective television camera system;

said control circuit for selecting and controlling each television camera system including a code generator for generating control signals containing coded commands to control said respective television camera system and a code signal corresponding to said identification code signals retrieved and decoded by said identification code decoder and for transmitting said control signals to said respective television camera system;

each television camera system further including a decoder circuit for receiving and decoding said control signals fed from said controller for operating said respective television camera system and said processor.

93. The apparatus according to claim 92, wherein at least one

of said two or more image pick up devices is a smaller imager with a smaller diagonal size and another one of said two or more image pick up devices is a larger image with a larger diagonal size than said smaller imager and wherein said switchover means switches over said image pick up devices from said smaller imager to a larger imager when said sensing and comparing circuit detects said low comparative video signal and back to said smaller imager when said sensing and detecting circuit detects said high comparative illumination signal.

94. The apparatus according to claim 92, wherein said television camera includes means for a remote activation of said switchover means and at least one of said two or more image pick up devices is a smaller imager with a smaller diagonal size and another one of said two or more image pick up devices is a larger imager with a larger diagonal size than said smaller imager and wherein said switchover means is remotely activated and switches over said image pick up devices from said smaller imager to a larger imager for increasing the angle of view of said narrow angle lens and back to said smaller imager to decrease said angle of view.

95. The apparatus according to claim 92, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens

and a zoom lens.

96. The apparatus according to claim 93, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

97. The apparatus according to claim 94, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

98. The apparatus according to claim 92, and further comprising an external synchronizing device for externally synchronizing said plurality of television camera systems, said external synchronizing device including:

an external synchronizing signal generator circuit feeding said transmission lines with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein each said television camera system incorporate a comparator circuit for separating said pulse signal propagated over said transmission lines from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said television camera.

99. The apparatus according to claim 93, and further comprising an external synchronizing device for externally

synchronizing said plurality of television camera systems,
said external synchronizing device including:

an external synchronizing signal generator circuit
feeding said transmission lines with an external
synchronizing pulse signal having a voltage level higher
than a maximum voltage level or lower than a minimum
voltage level of said video signals, and wherein each said
television camera system incorporates a comparator circuit
for separating said pulse signal propagated over said
transmission lines from said video signals by comparing
said video signals to a reference signal and applying said
separated pulse signal to said television camera.

100. An apparatus according to claim 94, and further
comprising an external synchronizing device for externally
synchronizing said plurality of television camera systems,
said external synchronizing device including:
an external synchronizing signal generator circuit feeding
said transmission lines with an external synchronizing
pulse signal having a voltage level higher than a maximum
voltage level or lower than a minimum voltage level of
said video signals, and wherein each said television
camera system incorporate a comparator circuit for
separating said pulse signal propagated over said
transmission lines from said video signals by comparing
said video signals to a reference signal and applying said

separated pulse signal to said television camera.

101. An apparatus for identifying a scene location viewed via remotely operated plurality of television camera systems, the apparatus comprising:

said plurality of television camera systems;

each said television camera system including

a television camera adapted to be remotely operated for observing a scene from varying directions through a narrow angle lens, said television camera including a dual mode image pick up device executing a color mode for generating color video signals and a black and white mode for generating black and white video signals;

an illumination level sensor conjoint said television camera for sensing the illumination level of said scene through a wide angle lens, said television camera and said illumination level sensor being optically targeted towards the same scene being observed;

means for moving said television camera and said illumination level sensor conjointly;

said television camera including a switchover means for switching said mode of said image pick up device from said color mode to said black and white mode and back to said color mode;

said dual mode pick up device changing the mode thereof from said color mode to said black and white mode by a

removal of an optical filter, and wherein said switchover means switches over the mode of said dual mode image pick up device by one of removing and inserting said optical filter between said dual mode image pick up device and said narrow angle lens;

a processor including a sensing and comparing circuit for video signals generated by said television camera and illumination signals generated by said illumination level sensor for detecting a low comparative video signal and a high comparative illumination signal by comparing said video signals and said illumination signals to a reference signal, and wherein said processor activates said switchover means from said color mode to black and white mode when said sensing and comparing circuit detects said low comparative video signal generated by said television camera, and returns said switchover means back to said color mode when said sensing and comparing circuit detects said high comparative illumination signal generated by said illumination level sensor;

a code signal generating circuit for generating and injecting into the video signal identification code signals allotted to each respective television camera system;

a receiving means including a controller for selectively receiving said video signals and for remotely operating

said means for moving said first television camera and said illumination level sensor conjointly, said controller including a control circuit for selecting and controlling each respective television camera system, and an identification code decoder for retrieving and decoding said identification code signals from the selectively received signals;

a plurality of transmission lines for connecting said television camera systems with said receiving means for propagating said video signals from the respective television camera system to said receiving means and control commands from said receiving means to said respective television camera system;

said control circuit for selecting and controlling each television camera system including a code generator for generating control signals containing coded commands to control said respective television camera system and a code signal corresponding to said identification code signals retrieved and decoded by said identification code decoder and for transmitting said control signals to said respective television camera system;

each television camera system further including a decoder circuit for receiving and decoding said control signals fed from said controller for operating said respective television camera system and said processor.

102. The apparatus according to claim 101, wherein the modes of said dual mode image pick up device are a black and white mode for generating a black and white video signals and an IR mode for generating black and white signals of an IR illuminated scene and wherein said dual mode image pick up device changes the mode thereof from the black and white mode to the infrared mode by a removal of an optical filter when said sensing and comparing circuit detects said low comparative video signal and back to black and white mode when said sensing and detecting circuit detects said high comparative illumination signal.

103. The apparatus according to claim 101, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

104. The apparatus according to claim 102, wherein said narrow angle and said wide angle are set by lenses selected from a group consisting of a fixed focal lens, a varifocal lens and a zoom lens.

105. The apparatus according to claim 101, and further comprising an external synchronizing device for externally synchronizing said plurality of television camera systems, said external synchronizing device including:

an external synchronizing signal generator circuit feeding said transmission lines with an external

2025 RELEASE UNDER E.O. 14176

synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein each said television camera system incorporates a comparator circuit for separating said pulse signal propagated over said transmission lines from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said television camera.

106. An apparatus according to claim 102, and further comprising an external synchronizing device for externally synchronizing said plurality of television camera systems, said external synchronizing device including:

an external synchronizing signal generator circuit feeding said transmission lines with an external synchronizing pulse signal having a voltage level higher than a maximum voltage level or lower than a minimum voltage level of said video signals, and wherein each said television camera system incorporate a comparator circuit for separating said pulse signal propagated over said transmission lines from said video signals by comparing said video signals to a reference signal and applying said separated pulse signal to said television camera.